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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/624,098	07/24/2000	Mario Tenuta	2527-1A	5268

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02/22/2005

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EXAMINER

NAFF, DAVID M

ART UNIT

PAPER NUMBER

1651

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/624,098

Applicant(s)

TENUTA ET AL.

Examiner

David M. Naff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 20 is/are rejected.
- 7) ☒ Claim(s) 11 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

In view of the appeal brief filed on 11/3/04, PROSECUTION IS
HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise
5 one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is
non-final) or a reply under 37 CFR 1.113 (if this Office action is
final); or,

(2) request reinstatement of the appeal.

10 If reinstatement of the appeal is requested, such request must be
accompanied by a supplemental appeal brief, but no new amendments,
affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are
permitted. See 37 CFR 1.193(b)(2).

The text of those sections of Title 35, U.S. Code not included in
15 this action can be found in a prior Office action.

Claims examined on the merits are 1-15 and 20, which are all
claims in the application.

Claim Objections

Claims 11 and 20 are objected to because of the following
20 informalities: in line 2 of claim 11, "and" should be --- is --- to
be grammatically correct. In line 1 of claim 20, "stp" is a
misspelling. Appropriate correction is required.

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Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

5 A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10 Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Muncie et al (NEW GROUND OF REJECTION).

The claims are drawn to controlling soilborne pathogens in a soil by adding a nitrogen-containing material and a pH reducing agent. The pH reducing agent is present in an amount sufficient to reduce soil pH
15 below 5.5, and the nitrogen containing material is present in an amount sufficient to generate nitrous acid to control the soilborne pathogens.

Muncie et al disclose (page 303, under "Summary") that acid fertilizer alone or in combination with sulphur reduced potato scab
20 infection. The infection is caused by *Actinomyces scabies* (page 293, first paragraph), which is also known as *Streptomyces scabies* (*S. scabies*). The least amount of scab occurred in soil plots having a pH of approximately 3.5-3.8. The acid fertilizer is made by mixing appropriate amounts of ammonium sulphate (sulfate), special acid
25 reacting superphosphate and potassium sulphate (page 295, second sentence of first paragraph).

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Reducing potato scab by adding acid fertilizer to soil to provide a pH of 3.5-3.8 as disclosed by Muncie et al results in a process that is the same as presently claimed. The ammonium sulfate contained by the fertilizer is a nitrogen source that will inherently generate nitrous acid as claimed. The present specification discloses *S. scabies* as a pathogen the invention applies (page 14, lines 16, 20 and 22, and page 16, penultimate line), and the use of ammonium sulfate as the nitrogen source (page 19, the complete paragraph). The specification further discloses that nitrification occurs in soil by oxidation of NH_4^+ to NO_2^- , and the NO_2^- is converted to HNO_2 under acid conditions. For example, see the paragraph bridging pages 18 and 19.

Claim Rejections - 35 USC § 103

Claims 1-12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muncie et al in view of Cooley (6,300,282).

The invention and Muncie et al are described above.

Cooley discloses prior art growing of potatoes (col 1, lines 30-45). As disclosed by Cooley, potatoes require significant amounts of nitrogen, and fertilizer containing nitrogen, Phosphorus, and potassium is typically added to the soil where the potato seed piece is to be planted, just prior to or at planting. Then, about a week after plants emerge in mid- to late-May, another nitrogen fertilizer application is often made, for example, by dripping liquid urea ammonium nitrate of from 28% to 32% nitrogen onto the sides of the hill, or applying a granular ammonium nitrate onto the sides of the hill. A hiller attachment then throws soil onto the sides of the hill

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to cover the newly-applied nitrogen fertilizer. This process is typically repeated a second time 7-10 days later. By this time, the potato plants will have become too large to send the fertilizer/hiller equipment through the fields. So, if further nitrogen supplements are
5 required, a liquid nitrogen fertilizer such as liquid urea ammonium nitrate is sent through the irrigation water.

When using acid fertilizer to provide a low pH to control potato scab as disclosed by Muncie et al, it would have been obvious to provide additional nitrogen by adding ammonium nitrate as suggested by
10 Cooley disclosing that prior art potato growing involves applying fertilizer when potato pieces are planted, and then adding ammonium nitrate after plants emerge. The ammonium sulfate in the fertilizer and the added ammonium nitrate will inherently generate nitrous acid as required by claim 1. The pH reducing agent being contained by the
15 ammonium source as in dependent claim 3 would have been suggested by Muncie et al using an acid fertilizer that provides acid and contains ammonium sulfate. Adding animal manure, meat or bone meal or soya meal as in dependent claims 6-8 would have been obvious since these materials would have been expected to contain nitrogen. Selecting a
20 preferred optimum amount of nitrogen material to apply to soil as in dependent claims 9 and 10 for potato growth would have required only limited experimentation and been obvious. Adding the pH reducing agent before the nitrogen material or the converse as in dependent claims 11 and 12 would have been a matter of obvious choice depending
25 on individual preference and convenience. Measuring the pH and

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buffering capacity of soil as in dependent claim 20 would have been obvious to determine how much acid fertilizer or acid must be added and the pH lowered to obtain the desired acid pH for reducing potato scab. The buffer capacity of claim 20 is that of most soils for
5 growing potatoes.

Claim Rejections - 35 USC § 103

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1-12 and 20 above, and further in view of Behel Jr. (5, 366, 533), and if
10 necessary in further view of Weltzien et al (4,919,702).

The claims require the pH to be reduced by adding an acid such as citric acid.

Behel Jr. discloses adding to soil a citrus by-product that provides citric acid in soil to complex with iron and make the iron
15 available for plants (col 2, lines 55-66 and col 6, line 56).

Weltzien et al disclose adding a fertilizer to soil that contains ascorbic acid (col 3, lines 19-29) and an ammonium nitrogen source (col 5, lines 25 and 34-37).

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When reducing potato scab disease by lowering the pH of soil and adding ammonium nitrate as set forth above, it would have been obvious to add citric acid to the soil to provide the lower pH as suggested by Behel Jr providing citric acid in soil, and if needed as further
5 suggested by Weltzien et al adding to soil a fertilizer containing ascorbic acid.

Response to Arguments

Applicants urge in the brief that Muncie et al disclose a reduction in yield when reducing pH sufficient to affect growth of the
10 potato scab organism. However, a decrease in yield can occur in the presently claimed process, and the claims fail to require any condition that will prevent yield decrease as disclosed by Muncie et al.

Applicants urge that Muncie et al disclose that growth of potato
15 scab organism was only partially inhibited in soils of low pH and that it gradually adapted itself to these conditions. However, the present claims require no step and/or condition different than disclosed by Muncie et al that would provide more potato scab reduction and a longer period of potato scab reduction than obtained by Muncie et al.

20 Applicants refer to a Davis et al reference previously cited, of a later date than Muncie et al, as finding that scab can be reduced by adding sulfur with little pH control. However, the Davis et al reference fails to suggest that lowering the pH to 3.5-3.8 as disclosed by Muncie et al will not reduce potato scab. Davis et al

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disclose that the effect of sulfur on the potato scab pathogen was not due to pH lowering since adding sulfur lowered the pH only 0.4.

Applicants urge that Cooley is not concerned with soilborne pathogens and is teaching using a surfactant. While the invention of Cooley is using a surfactant, the surfactant is not intended to replace the addition of nitrogen, but is to be used in combination with the nitrogen source to prevent nitrogen leaching from soils. Contrary to applicants' assertion, Cooley is concerned with soilborne pathogens since Cooley discloses (col 1, lines 25-28) that potato pieces to be planted are usually sprayed with a blight prevention compound and/or other disease-preventing pesticide. In any event, Cooley is combined with the Muncie et al reference, which suggests an acid pH to reduce potato scab. The references must be considered in combination as a whole and not each alone.

Applicants urge that a Declaration of Dr. George Lazarovits has been placed in the file showing tests carried out of reducing soil pH with sulfuric acid, and finding no effect of lower pH on the severity of potato scab as compared to a control. The declaration is unpersuasive that lowering pH as disclosed Muncie et al does not reduce potato scab since the tests in the declaration are not carried out under the same conditions as used by Muncie et al. For example, the soil used in the declaration tests is a soil having a high disease pressure for potato scab. Additionally, a nitrogen source is not provided in the declaration tests, and this may have resulted in weakened potato plants, which are less resistant to potato scab due to

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not having sufficient nutrients. Furthermore, Figure 2 of the declaration shows a slight decrease in scab at both pH 5 and pH 4 as compared to the control, and the decrease in scab at pH 4 is slightly greater than at pH 5. While the decrease in scab at pH 5 and 4 is
5 stated as to small to be significant, the decrease in scab is greater at pH 4 than at 5, and the decrease in scab would have probably been even greater at pH 3.5-3.8 as disclosed by Muncie et al.

Conclusion

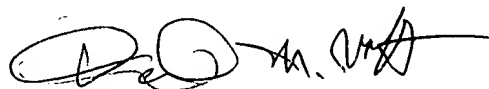
Any inquiry concerning this communication or earlier
10 communications from the examiner should be directed to David M. Naff whose telephone number is 571-272-0920. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on 571-272-
15 0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

10



David M. Naff
Primary Examiner
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2/16/05



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